UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,810	09/19/2005	Sadao Ioki	Q88611	7664

23373 7590 08/04/2008

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
LUONG, DZU D	
ART UNIT	**PAPER NUMBER**
2871	

MAIL DATE	DELIVERY MODE
08/04/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/549,810	IOKI ET AL.	
	Examiner	Art Unit	
	DZU LUONG	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed on April 04, 2008 under 37 CFR 1.131 is sufficient to overcome the Yoo et al. (US 2004/0130884) reference.

Claims 1-13 are pending and an action on the merits is as follow.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims **1**-**13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (WO 01/59508 A1, using US 6,864,862 B2 as the US equivalent document), in view of Weindorf et al. (US 2002/0140880 A1) and Holman et al. (US 6,871,982 B2).

Regarding Claim 1:

Sato et al. discloses an image display system (`liquid crystal display unit 10a`. See at least to Figs. 9A, 9B, 10, 11A, 11B) comprising:

- a liquid crystal display panel (`liquid crystal panel 20`) which can transmit light irradiated from behind;

- a light source (backlight 13) for irradiating
  - a light having a specific polarization (right-eye polarizing filter 14a) and
  - a light having a polarization axis orthogonal to the specific polarization (left-eye polarizing filter 14b) onto the liquid crystal display panel,
  - a filter (polarizing filter 21a. See Fig. 10) disposed between the liquid crystal display panel and the light source and comprises
    - * first areas (21a) for transmitting the light having the specific polarization and
    - * second areas (22a) for transmitting the light having the polarization axis orthogonal to the specific polarization disposed repeatedly in the vertical direction;
- the light source comprising
  - a light emitting source (backlight 13) for emitting light which has no specific polarization,
  - polarizing means (right- and left-eye polarizing filters 14a and 14b) for turning (the right- and left-eye polarizing filters 14a and 14b are configured to linearly polarize the light in polarizing directions orthogonal to each

other. See column 1, lines 65-67)

- * the light which has no specific polarization into the forms of the light having the specific polarization and
- * the light having the polarization in which the polarization axis is orthogonal to the polarization axis of the specific polarization to output the lights,

- optical means (Fresnel lens 11. See Figs 9A-B) for
  - * refracting the lights having the different polarizations into the directions toward the left and right eyes respectively and
  - * irradiating the same onto the liquid crystal display panel.

Sato et al. fails to disclose the light-emitting source is a linear light-emitting source.

Weindorf et al. discloses a liquid crystal display device 100. See at least Figs. 1-2) wherein a backlighting device (Applicant's linear light-emitting source) comprises a plurality of LEDS 126 and a plurality of LED current control circuits 128. In addition, Weindorf et al. discloses the parallel LED array 402 (See Fig. 4) includes a plurality of LEDs D2, D3, and Dn connected in parallel. The LEDs may be white LEDs or colored LEDs (See paragraph 29, lines 6-7, and paragraph 52, lines 1-3, respectively). Therefore, it would have been at least obvious to one of ordinary skill in the art to employ the backlighting device as a linear light-emitting source for achieving advantages such as the LEDs D2, D3, and Dn

may each be separately current sourced to provide consistent LED brightness. This eliminates most brightness variations caused by LED forward voltage variations (See paragraph 53, lines 1-4 of Weindorf et al.). As a result, Sato et al. as modified by Weindorf et al. discloses

- characterized-in that the light-emitting source is a linear light-emitting source (backlighting device of Weindorf et al.) which is disposed in the lateral direction with respect to the liquid crystal display panel (See at least Fig. 1 of Weindorf et al.) so that
  * a light source member (polarizing filter 22a of Sato et al.) for displaying three-dimensional images comes to the center portion and
  * light source members (polarizing filter 21a and halfwave plates 26 of Sato et al.) for enlarging viewing angle come to both sides.

Sato et al. as modified by Weindorf et al. fails to disclose the linear light-emitting source comprises center prisms and peripheral prisms.

Holman et al. discloses an illumination system (Applicant's linear light-emitting source) wherein light-recycling reflectors for collecting and reusing light emitted by a planar LED light source (See at least column 4, lines 34-35; and Figs. 15A-28E) for achieving the highest possible concentrations of output lumens per square millimeter of output aperture (See column 4, lines 34-35; and column 11, lines 36-38 of

Holman et al., respectively). Therefore, it would have been at least obvious to one of ordinary skill in the art to employ the light-recycling reflectors as

* center prisms which increase brightness by narrowing the irradiating range of the linear light-emitting source at the center portion of the linear light-emitting source

for achieving similar advantages such as the highest possible concentrations of output lumens per square millimeter of output aperture. (See column 11, lines 36-38 of Holman et al.).

Furthermore, since the LEDs D2, D3, and Dn may each be separately current sourced to provide consistent LED brightness as discussed above, Sato et al. in view of Holman et al. and further in view of Weindorf et al. discloses

* peripheral prisms having a different brightness from the center prisms disposed at both ends of the linear light-emitting source.

Thereby, this eliminates most brightness variations caused by LED forward voltage variations (See paragraph 53, lines 1-4 of Weindorf et al.).

Regarding Claims 2:

Sato et al. as modified by Weindorf et al., and Holman et al. discloses an image display system according to claim 1, characterized in that the linear light-emitting

source includes linearly disposed plurality of point light-emitting sources (`LED`), and the center prisms and the peripheral prisms (See at least Figs. 15A-28E of Holman et al.) each includes

- a light-inputting surface (`hemispherical mirror 332`) which allows light from the point light-emitting sources to enter and
- a light-outputting surface (`condensing lens 308`) which outputs light entered from the light-inputting surface and then corrected in the optical path, which are disposed in one-to-one relation with respect to the respective point light-emitting sources.

Doing so would achieve `light-recycling reflectors` (Applicant's center prisms and peripheral prisms) `for collecting and reusing light emitted by a planar LED light source`, and thereby `the highest possible concentrations of output lumens per square millimeter of output aperture` can be obtained (See column 4, lines 34-35; and column 11, lines 36-38 of Holman et al., respectively).

Regarding Claims 3:

Sato et al. as modified by Weindorf et al., and Holman et al. discloses an image display system according to claim 2, characterized in that the light-outputting surfaces of the center prisms and the peripheral prisms are arranged without gap therebetween (See Fig. 31B of Holman et al.).

Doing so would achieve `light-recycling reflectors` (Applicant's center

prisms and peripheral prisms) for collecting and reusing light emitted by a planar LED light source, and thereby the highest possible concentrations of output lumens per square millimeter of output aperture can be obtained (See column 4, lines 34-35; and column 11, lines 36-38 of Holman et al., respectively).

Regarding Claims 4:

Sato et al. as modified by Weindorf et al., and Holman et al. discloses an image display system according to claim 2, characterized in that the center prisms and the peripheral prisms are disposed in one-to-one relation with respect to the respective point light-emitting sources (the parallel LED array 402 includes a plurality of LEDs D2, D3, and Dn connected in parallel. See paragraph 52, lines 1-3, and Fig. 4 of Weindorf et al.).

Doing so would eliminate most brightness variations caused by LED forward voltage variations (See paragraph 53, lines 1-4 of Weindorf et al.).

Regarding Claims 5:

Sato et al. as modified by Weindorf et al., and Holman et al. discloses an image display system according to claim 2, characterized in that the center prisms and the peripheral prisms are provided separately for

- the center portion of the linear light-emitting source and
- the both ends of the liner light-emitting source,

and formed integrally via the peripheral portions of the light-outputting surfaces corresponding to the predetermined-number of point light-emitting sources (the LEDs D2, D3, and Dn may each be separately current sourced to provide consistent LED brightness. (See paragraph 53, lines 1-4 of Weindorf et al.).

Thereby this eliminates most brightness variations caused by LED forward voltage variations (See paragraph 53, lines 1-4 of Weindorf et al.).

Regarding Claims 6:

Sato et al. as modified by Weindorf et al. and Holman et al. discloses an image display system according to any one of claim 2 to claim 5. In accordance with another aspect of Weindorf et al.'s invention, the backlight unit including emitter resistors R7, R8, and Rn which further reduce variations in the current from the current source transistors, Q3, Q4, and Qn. Thus, the parallel LEDs D2, D3, and Dn maintain consistent brightness (See at least paragraph 55, lines 1-4). Accordingly,

characterized in that the point light-emitting sources are arranged

- at high density at the center portion of the linear light-emitting source and
- at low density at both end portions of the linear light-emitting source

can be obtained. Thus, the parallel LEDs D2, D3, and Dn maintain consistent brightness (See at least paragraph 55, lines 10-13 of Weindorf et

al.).

Regarding Claims 7:

Sato et al. as modified by Weindorf et al., and Holman et al. discloses an image display system according to any one of claim 1 to claim 5, characterized in that the center prisms and the peripheral prisms include wedge shaped prisms (See at least Figs. 15A-28E of Holman et al.) each having

- a light-inputting surface facing the point light-emitting sources and
- a light-outputting surface facing the liquid crystal display panel surface, and
- at least one of the opposing side surfaces of the wedge shaped prism with respect to the liquid crystal display panel is formed into-a curved surface.

Doing so, the highest possible concentrations of output lumens per square millimeter of output aperture can be obtained (See column 11, lines 36-38 of Holman et al., respectively).

Regarding Claims 8:

Sato et al. as modified by Weindorf et al., and Holman et al. discloses an image display system according to claim 6, characterized in that the center prisms and the peripheral prisms include wedge shape prisms (See at least Figs. 15A-28E of Holman et al.) each having

- light-inputting surface facing the point light-emitting sources and
- a light-outputting surface facing the liquid crystal display panel surface, and

- at least one of the opposing side surfaces of the wedge shaped prism with respect to the liquid crystal display panel is formed into a curved surface.

Doing so, the highest possible concentrations of output lumens per square millimeter of output aperture can be obtained (See column 11, lines 36-38 of Holman et al., respectively).

Regarding Claim 9:

Sato et al. as modified by Weindorf et al., and Holman et al. discloses an image display system according to claim 7, characterized in that the other opposing side surface of the wedge shaped prism is formed into a flat plane (See at least Figs. 15A-28E of Holman et al.).

Doing so, the highest possible concentrations of output lumens per square millimeter of output aperture can be obtained (See column 11, lines 36-38 of Holman et al., respectively).

Regarding Claim 10:

Sato et al. as modified by Weindorf et al., and Holman et al. discloses an image display system according to claim 8, characterized in that the other opposing side surface of the wedge shaped prism is formed into a flat plane (See at least Figs. 15A-28E of Holman et al.).

Doing so, the highest possible concentrations of output lumens per square millimeter of output aperture can be obtained (See column 11, lines 36-38 of Holman et al., respectively).

Regarding Claim 11:

Sato et al. as modified by Weindorf et al., and Holman et al. discloses an image display system according to any one of claim 1 to claim 5, characterized in that the light-outputting surfaces of the center prisms and the light-outputting surfaces of the peripheral prisms are positioned at substantially a uniform distance to the center portion of the liquid crystal display panel (See at least Figs. 15B, 15D, 28B, 28C of Holman et al.).

Doing so, the highest possible concentrations of output lumens per square millimeter of output aperture can be obtained (See column 11, lines 36-38 of Holman et al., respectively).

Regarding Claim 12:

Sato et al. as modified by Weindorf et al., and Holman et al. discloses an image display system according to claim 6, characterized in that the light-outputting surfaces of the center prisms and the peripheral prisms are positioned at substantially a uniform distance toward the center of the liquid crystal display panel (See at least Figs. 15B, 15D, 28B, 28C of Holman et al.).

Doing so, the highest possible concentrations of output lumens per square millimeter of output aperture can be obtained (See column 11, lines 36-38 of Holman et al., respectively).

Regarding Claim 13:

Sato et al. discloses a light source unit (liquid crystal display unit 10a.

See at least to Figs. 9A, 9B, 10, 11A, 11B) comprising

- a light source member(polarizing filter 22a of Sato et al.) for observation from the front at a center portion and
- light source members (polarizing filter 21a and halfwave plates 26 of Sato et al.) for enlarging the viewing angle at both end portions for emitting light linearly and irradiating on a liquid crystal display panel from behind via optical means (Fresnel lens 11. See Figs 9A-B) which refracts and irradiates light onto the liquid crystal display panel.

Sato et al. fails to disclose the light source unit comprises center prisms and peripheral prisms.

Holman et al. discloses an illumination system (Applicant's linear light-emitting source) wherein light-recycling reflectors for collecting and reusing light emitted by a planar LED light source (See at least column 4, lines 34-35; and Figs. 15A-28E) for achieving the highest possible concentrations of output lumens per square millimeter of output aperture (See column 4, lines 34-35; and column 11, lines 36-38 of Holman et al., respectively). Therefore, it would have been at least obvious to one of ordinary skill in the art to employ the light-recycling reflectors into the light source unit for achieving advantages such as the highest possible concentrations of output lumens per square millimeter of output aperture. (See column 11, lines 36-38 of Holman et al.). In other words,

configured in such a manner that

- the center prisms for narrowing an irradiating range of the linear light-emitting source to increase the brightness are disposed at the center portion of the linear light-emitting source

can be obtained. Doing so, the highest possible concentrations of output lumens per square millimeter of output aperture can be obtained (See column 11, lines 36-38 of Holman et al., respectively).

Sato et al. as modified by Holman et al. fails to disclose peripheral prisms having a brightness different from the center prisms.

Weindorf et al. discloses a liquid crystal display device 100 (See at least Figs. 1-2) wherein a backlighting device (Applicant's linear light-emitting source) comprises a plurality of LEDS 126 and a plurality of LED current control circuits 128. In addition, the parallel LED array 402 (See Fig. 4) includes a plurality of LEDs D2, D3, and Dn connected in parallel. The LEDs may be white LEDs or colored LEDs (See paragraph 29, lines 6-7, and paragraph 52, lines 1-3, respectively). Therefore, it would have been at least obvious to one of ordinary skill in the art to employ the backlighting device as a linear light-emitting source for achieving advantages such as the LEDs D2, D3, and Dn may each be separately current sourced to provide consistent LED brightness. This eliminates most brightness variations caused

by LED forward voltage variations (See paragraph 53, lines 1-4 of Weindorf et al.). As a result, Sato et al. as modified by Holman et al. and Weindorf et al. discloses

- peripheral prisms having a brightness different from the center prisms are disposed on both end portions of the linear light-emitting source.

Thereby, this eliminates most brightness variations caused by LED forward voltage variations (See paragraph 53, lines 1-4 of Weindorf et al.).

Response to Arguments

4. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

It is for this reason that the rejections have been maintained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzu Luong whose telephone number is 571-270-3102. The examiner can normally be reached on Monday-Friday 8:00 AM - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, DAVID NELMS can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DL/

Dzu Luong
July 21, 2008

/Andrew Schechter/
Primary Examiner, Art Unit 2871